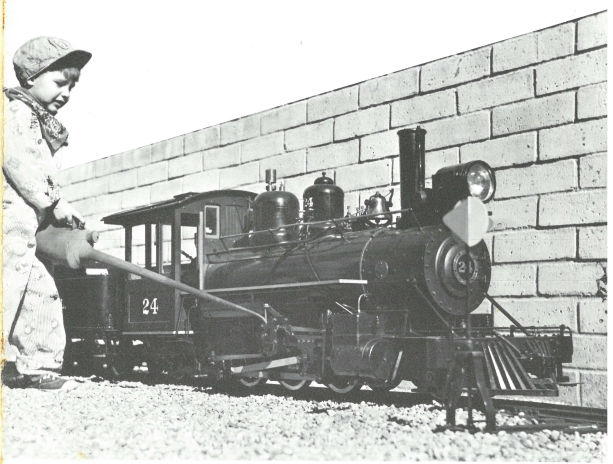
MARCH
1969
45¢

Live Steam®

THE MONTHLY MAGAZINE FOR ALL LIVE STEAMERS AND LARGE-SCALE MODEL RAILROADERS



Maine Two-Footer Rolls Again!

Activity on the Johnston Line

DON'T FORGET TO REGISTER
for the
NJLS SPRING MEET
See coupon on page 5 of LIVE STEAM Magazine for February 1969

Live Steam
magazine

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COVER PHOTO

About the only thing that looks out of scale in the oil can as four-year-old Jay Lovitt readies Grandpa Richard Stolzenfels' SR & RL #24 for a morning run.

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Richard Stolzenfels re-creates a

MAINE TWO-FOOTER

Just about fifty years ago, back in May of 1919, the Baldwin Locomotive Works turned out its 51,803rd engine — a diminutive 2–6–2 which had to be loaded on a flat car for the trip from Philadelphia to Farmington, Maine, before its 33-inch drivers could roll over the 24-inch gauge track for which it was designed. #24 of the Sandy River and Rangeley Lakes Railroad was destined to spend her seventeen years and one month within the confines of the two-foot gauge lines in Maine . . . but she earned the warm respect and admiration of railfans far and near during those years.

In Maine — about 1935 or 1936 — a railfan named Linwood Moody wrote about the two-foot gauge lines of Maine in *Railroad Stories* Magazine and his intimate knowledge of the little trains made very interesting reading.

In Michigan a high school student named William Fitt read the article over and over — and even when parental instructions to "get rid of some of that junk" relegated that magazine to the trash can, pictures of the SR & RL #24 along with others from that article (including the insignia above) clipped and pasted in a dime-store scrap book.

Across the country, in California, the article drew similar response from Richard Stolzenfels. There the #24 found a warm spot in a back corner of another railfan's heart and the picture was clipped for keeping with those countless odds and ends that railfans seem to collect. Richard, though, decided that one day he would build a model of the 24.

During the ensuing years Richard did build several locos in 1" scale along with track for operation around his home in Bakersfield. Then, in 1959, Linwood Moody published his book *"The Maine Two-Footers"* which included many fine photos as well as a drawing of the SR & RL #24 by Henry D. Crittenden. It wasn't hard to locate the old magazine photo — and the #24 still looked as appealing as it had through all those years!

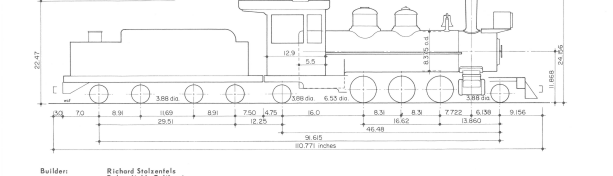
With a little calculation, Richard decided that if he built the #24 at a scale of 2-5/8" to the foot he could operate it on his existing 4¾" gauge track. Although the 2-5/8" figure seemed awkward at first, he soon reasoned that .198" equalled one inch of the prototype and from then on it was as simple as working in 1" scale.

The bell came first . . . for no particular reason. Calculations and drawings, patterns and castings gradually began to take shape in a very familiar form and suddenly the 24 existed again!

A few of the Live Steamers in close contact with this re-creation were sure that the #24 would turn over much easier than the regular 1" scale engines on such seemingly narrow track. After a couple of years of running, though, (including several derailments charged to the track crew) she has proven to be just as steady as the 1" scale engines.

The engine is a very free steamer and it seems that the harder she is working the better she steams. Richard is now busy building some Sandy River cars to match the 24 and looks forward to the day when the 24 will look right at home with a string of her own cars.

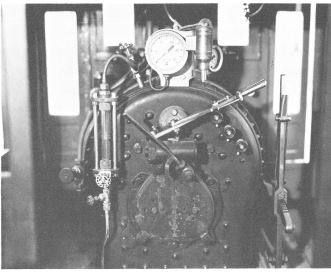
But now the pendulum makes its renun swing. The #24 is now in California — albeit even more appealing in its reduced size, and the creation of craftsman Richard Stolzenfels. William Fitt is still in Michigan but publishing rather than merely reading about railroads as intriguing as the 24. He'll paste the SR & RL insignia back in the dime-store scrap book which now stands on his book shelves in the office of LIVE STEAM Magazine. And who knows . . . out in Maine Linwood Moody may pick up a copy of LIVE STEAM Magazine, read this story and clip the pictures of Richard Stolzenfels' 24 — and begin dreaming about a trip to California!



Builder:	Richard Stolzenfels Bakersfield, California
Date:	Started: August 1961 Under Steam: Sept. 19, 1965
Type:	2–6–2 "Prairie"
Scale:	2-3/8" = 1'0"
Gauge:	4¾"
Prototype:	SR & RL #24 (Baldwin 1919)
Cylinders:	Bore: 2" Stroke: 3-3/16" Slide valves
Valve Gear:	Walschaerts
Firebox:	Length: 2⅝" Width: 4¾" Grate Area: 50.35 sq. in. Fuel: Coal
Boiler:	Material: 1/8" copper Pressure: 100# psi Tubes: 30 — .500" o.d. .25½" long Stayboltz: 209 — .250" dia.
Weights in working order:	Total Engine: 550# Tender: 160# Engine & Tender: 710#
Indicated Horse Power:	2.023
Tractive Effort:	188.278#

You can feel the warmth of the early morning sun on your back as you imagine the hostler at Phillips looking at the steam gauge. The #24 has been left on the cinder pit over the weekend and he will now have to get that needle up to 170# for the morning run down to Farmington to meet the Maine Central train from Portland . . . except that this happens to be Richard Stolzenfels' #24 and 100# on the clock will handle all the running you can do in Bakersfield! ⟶

photos by Richard Stolzenfels



about the Directory...

we would like to advise that it is as of this writing (May 5th) all printed, partially cut into pages and by the time this reaches you they should be in the mail. We want to especially thank those of you who have been so patient in waiting for these to appear. We hope they will fully serve their intended purpose in helping you reach other Live Steamers around the country.

about LIVE STEAM

(and it's apparent irreverance to a schedule) we will state that things are looking up in that department, too. After the January issue went out we put all effort into completing the work on the BLS Directory. While the final bunch of plates were being made we banged out the February issue of LIVE STEAM and started printing the Directory. We have now completed arrangements to have the printing work done on LIVE STEAM by others and look forward to a more professional approach to our project than we experienced last summer when we tried to make the move. This issue will be the first, but look for new techniques and approaches as we get to work them into our plans.

and about Renewals...

we would take a minute to thank the many who have send theirs in even though they had not yet received all of their year's subscription. If your subscription expires with the April issue, it would be of incalculable assistance if you could send in your renewal rather than wait for a notice. It will spread the work load out for Good Wife Doris and eliminate the printing and mailing of notices so we can concentrate on getting LIVE STEAM back on schedule. With the Directory out of the way and the work of printing handled by others we should be able to turn out an issue every three weeks now until we get caught up. Who knows . . . there may even be time to get some of that rail out of the boxes and down on the ground this summer!

Live Steam news

REAL DEVOTION TO THE HOBBY!

At 9:00 a.m. on January 1st, 1969, the thermometer read -6°F at Matt Fairlie's track near Chicago . . . hardly ideal conditions for the brave Live Steamers who look forward to Matt's regular New Year's Day run. About 11:00 a.m., Fred Hansen pulled in from South Bend, Indiana, and helped Matt urge the mercury upward. By noon they succeeded in getting it up to zero – and when it hit +2°F, they fired up!

After a couple of hours running at that temperature a film of ice on the rails caused by cylinder cock and other drippings added to the freezing of some small water lines and activity had to be confined to conversation inside the house.

With a full summer of running to thaw out the pipes, you can bet that the chill of that day in 1969 will be forgotten and come New Years' Day 1970 they will be out there again!

INFLATION SPIRAL DEFLATES LIVE STEAM SUPPLIERS LIST

Due to the skyrocketing costs of castings and other materials, Evert Brunley has announced that he will be forced to discontinue the sale of 1½" trucks and other Live Steam items he has offered, once his present stock is sold.

LOS ANGELES IN 1970 NATIONAL MEETING

BROTHERHOOD OF LIVE STEAMERS

MAY 29-30-31 1970

GWYNN BISHOP of San Jose, California, passed away on March 22nd. He was a new member of the Golden Gate Live Steamers although was well-known in the Bay Area Live Steam circle.

Gwynn has been working on a 1" scale Pacific for some time but had decided to hold off club activity until his locomotive was finished or nearly so.

He will be missed as a good friend by many and as a fellow Live Steamer by all.

MATT FAIRLIE'S 7th ANNUAL WINTER WORKSHOP

The Weatherman cooperated this year and held off any rain or snow on March 28th for Matt Fairlie's Seventh Annual Winter Workshop Meet in Markham, Illinois. The early birds began arriving about 6:30 p.m. to help Matt set up and the last ones left about 2:00 a.m. There was the usual full house of Live Steamers from the Chicago area and lots of locomotives on display.

Ben Bryan was in the hospital, unfortunately, and wasn't able to render personally his poems like *"The Great New York Central Race"* but Bruce Acher brought his tape recorder and played it and many others in Ben's absence.

Ray Whitaker came 100 miles from Cedar Point, Illinois, and was given a big hand when it was announced that he was starting on a 1½" Mogul at age 78! He has completed a ¾" Hudson and a 1½" Hudson which run beautifully.

Reports on progress of the Northern Illinois Live Steamers' facilities and the 4th Annual Exhibit of the Chicago Model Engineers Association were made, but the remainder of the evening was just a wonderful opportunity for Live Steamers to get together and "talk steam."

DON'T FORGET TO REGISTER
for the
NJLS SPRING MEET
See coupon on page 5 of LIVE STEAM Magazine for February 1969

Live Steam sounds a reality in

Houston

The Gulf Coast Chapter of the NRHS is in operation! On December 29th, Jake DeVries, Bob Armstrong and Paul DeVerter fastened the first 40 feet of prefabricated track to the supporting trestles on Bill Kercher's property and on January 19th the first steam trip was made with Paul De Verter's ¾" *Juliet II* with Baker valve gear. Here's how Paul tells about the event:

The engine ran remarkably well and hauled me plus 2 children without too much trouble. The exhaust beats were not entirely even, and the axle pump leaked a fair amount of water. But still, it ran.

The most remarkable part, and the real tribute to LBSC, is that I built this engine and ran it under steam without ever having seen a model engine under steam. In fact, this is still the only Live Steam loco I've ever seen in operation.

That tribute to LBSC should also furnish incentive to those who, for one reason or another, hesitate to begin a Live Steam locomotive.

The event of the first run was appropriately recorded on film and audio tape, and the enthusiasm kindled by actual operation will be directed toward extension of the track.

Jake DeVries is working on a 1" *Tom Thumb*, Dennis Grigassy on a ¾" *Tom Thumb*, R. W. Keeling on a 1" 0–4–0 switcher and Bob Armstrong on 7½" passenger trucks to round out activity in the three popular scales. If you want more information about this club, contact the Gulf Coast Chapter – NRHS, P. O. Box 9015, Houston, Texas 77011.

PAUL DEVERTER

Paul DeVerter's "words and music" LBSC *Juliet II* with Baker valve gear, working pressure 80 psi, hydrostatic test 160 psi. The homemade draft device is a piece of 1" electrical conduit with 1/8" copper tube hooked up to a 15 psi compressor. The tube has a small nozzle (drilled #70) in it. Steam is raised from wood shavings, charcoal and coal – cold to 30 psi in about 7 minutes. Draft device is then removed.

JAKE DEVRIES

Houston club's trackwork rests on piers of old railroad ties cut in two, to which 2 x 4 spacers are nailed on each side. The six-foot beams are 1 x 6 redwood with three small pieces of 2 x 4 blocking between them for stiffening.

Old #3 Heads For Winter Quarters

"Old #3" pounds up the CNR mainline from Winnipeg to her winter quarters at the CNR's Transcona shops with a combine full of CRM Officials on November 1st, 1968.

Official red tape kept operations to a minimum but the plucky group closed the 1968 books with black ink.

1969 holds promise of more activity and, since most of the Vintage Locomotive Society's members are Live Steamers, we will all watch the operations with great interest.

PHOTO BY TED SHORES

Scheduled Meets

May

16 PIONEER VALLEY LIVE STEAMERS
17 STEAMERS
18 Annual Spring Meet
3½" – 4¼" – 7¼"
Brenton W. Barnfather, Secy.
3 Fleetwood Drive
Sandy Hook, Conn. 06482

17 GOLDEN GATE LIVE STEAMERS
18 STEAMERS
Annual Spring Meet
2½" – 3½" – 4¼" – 7¼"
Gordon French, Secretary
614 18th Avenue
Menlo Park, Calif. 94025
Phone 415 – 325-4209

18 NORTHERN ILLINOIS LIVE STEAMERS
David M. Boyd's Track
3½" – 4¼"
315 Ridge Avenue
Clarendon Hills, Ill. 60514

24 MICHIGAN STEAM LOCOMOTIVE CLUB
Harry Partner's Track
7½" gauge
Utica Road near 15 Mile Rd.
Fraser, Michigan
Phone 313 – 771-3292

30 LOS ANGELES LIVE STEAMERS
31 STEAMERS
1 Annual Spring Meet
3½" – 4¼" – 7½"
Joel Corbin, Secretary
12723 Kittridge Street
North Hollywood, Calif. 91606

30 PENNSYLVANIA LIVE STEAMERS
31 STEAMERS
1 Annual Spring Meet
2½" – 3½" – 4¼"
Wm. H. Scott, Secretary
R.D. 1, Box 400
Sellersville, Pa., 18960

June

7 IOWA MODEL STEAM ENGINEERS
Annual Spring Meet
3½" – 4¼" – 7½"
Pershing G. Scott, Secretary
R.F.D. 1
Marion, Iowa 52302

27 NEW JERSEY LIVE STEAMERS
28 STEAMERS
29 Annual Spring Meet
ADVANCE REGISTRATION REQUIRED
3½" – 4¼" – 7¼"
Ralph Green, Secretary
845 Kilsyth Road
Elizabeth, N. J. 07208
Phone 201 – 353-4424

July

12 ONTARIO SUNPARLOR 13 LINES
Grand Opening Run
3½" – 4¼"
Jack Hart, Secretary
1381 Shepherd Street
Windsor, Ontario, Canada

August

3 PALATINE, LAKE ZURICH & WAUKONDA RAILROAD
2nd Anniversary Meet
4¼" gauge
Frank Saville
512 Miller
Barrington, Ill. 60010
Phone 312 – 381-3070

30 PENNSYLVANIA LIVE STEAMERS
31 STEAMERS
1 Annual Fall Meet
2½" – 3½" – 4¼"
Wm. H. Scott, Secretary
R.D. 1, Box 400
Sellersville, Pa., 18960

September

6 IOWA MODEL STEAM ENGINEERS
Annual Fall Meet
Pershing G. Scott, Secretary
R.F.D. 1
Marion, Iowa 52302

13 GOLDEN GATE LIVE 14 STEAMERS
Annual Fall Meet
2½" – 3½" – 4¼" – 7½"
Gordon French, Secretary
614 18th Avenue
Menlo Park, Calif. 94025
Phone 415 – 325-4209

19 NEW JERSEY LIVE 20 STEAMERS
21 ADVANCE REGISTRATION REQUIRED
3½" – 4¼" – 7¼"
Ralph Green, Secretary
845 Kilsyth Road
Elizabeth, N. J. 07208
Phone 201 – 353-4424

October

4 LOS ANGELES LIVE 5 STEAMERS
Annual Fall Meet
3½" – 4¼" – 7½"
Joel Corbin, Secretary
12723 Kittridge Street
North Hollywood, Calif. 91606

11 PIONEER VALLEY LIVE 12 STEAMERS
13 3½" – 4¼" – 7¼"
Brenton W. Barnfather, Secy.
3 Fleetwood Drive
Sandy Hook, Conn. 06482

Regular Run Days

GOLDEN GATE LIVE STEAMERS
Every Sunday, weather permitting
2½" – 3½" – 4¼" – 7½"
Gordon French, Secretary
614 18th Avenue
Menlo Park, Calif. 94025
Phone 415 – 325-4209

JAMUL VALLEY RAILROAD
3rd Sunday each month
7½" gauge
Harry P. Haas
Route 1, Box 47 A
Jamul, California 92035

NEW JERSEY LIVE STEAMERS
Each Sunday, May thru October
3½" – 4¼" – 7¼"
Ralph Green, Secretary
845 Kilsyth Road
Elizabeth, N. J. 07208
Phone 201 – 353-4424

PIONEER VALLEY LIVE STEAMERS
2nd Sunday each month
3½" – 4¼" – 7½"
Brenton W. Barnfather, Secretary
3 Fleetwood Drive
Sandy Hook, Conn. 06482

PENNSYLVANIA LIVE STEAMERS
May 11, June 15, July 13, Aug. 10, Sept. 14, Oct. 12
Wm. H. Scott, Secretary
R.D. 1, Box 400
Sellersville, Pa. 18960

LOS ANGELES LIVE STEAMERS
1st Sunday each month
3½" – 4¼" – 7½"
Joel Corbin, Secretary
12723 Kittridge Street
North Hollywood, Calif. 91606

RIVERSIDE LIVE STEAMERS
4th Saturday-Sunday each month
Hunter Park – Iowa & Columbia Ave.
Riverside, California
Francis H. Smith, Secretary
3131 Fairway Avenue
Riverside, California 92504
Phone 688-9533 or 683-9628

SOUTHERN CALIFORNIA LIVE STEAM CLUB
3rd Sunday each month
3½" – 4¼" – 7½"
K. G. Kepner, Secretary
2764 Maple
Rialto, California 92376

WABASH, FRISCO & PACIFIC
Every Sunday
12" gauge
Grand and First Streets
0.4 miles south of Post Office
Glencoe, Missouri

1968

VOLUME TWO

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William C. Fitt
Post Office Box 635
Cadillac, Michigan 49601

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All material is cross-indexed according to Title, Subject, Author and Photo in the following manner:

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Mann, Frank Oct. 6
MANN, JOHN
Puffing Billy Preservation Society
MAYNARD, ROBERT W.
Dayton NMRA Visits Live Steamers Aug. 4
Photo Aug. 4, 7
Story of Gallopin' Goose Apr. 2
McDonald, William Jun. 4
METAL
What's In The Scrap Box? Aug. 12
Michigan Adopts ASME Code Mar. 10
Michigan & Ohio Jun. 9
MID-SOUTH LIVE STEAMERS
Plan Spring Meet Mar. 6
"Southern Belle" Tells of Progress May 6
Spring Meet in Arkansas Aug. 6
Miller, Mrs. Charles Aug. 7
MILWAUKEE SOCIETY OF MODEL ENGINEERS
Finds Added Interest Aug. 5
Newest Live Steam Club Jan. 8
MODEL BOILERS
Boiler Tests Available Oct. 14
Moffitt, Russ Dec. 5
MONTREAL LIVE STEAMERS
Track Completed Oct. 14
Moore, Frank H. Jr. Oct. 2
MOREWOOD, WILLIAM H. building the RARITAN Crossheads and Rods Oct. 11
Cylinders Sep. 4
Drive Wheels Jul. 6
Erection Drawings May 8
Frame & Exhaust Fittings Aug. 8
Guides, Supports & Covers Nov. 5
Piston Assembly Dec. 8
Valve Gear & Feed Pump Jun. 10

MOTTSHAW, NORMAN
Obituary Sep. 9
Mueller, John May 9
Myers, Leo Aug. 6

Nass, Charles Oct. 2
NELSON, JOSEPH F.
So You Want To Build A Live Steam Locomotive
7/4 Machining Steam Engine Piston Rings Jan. 5
8 Smokebox Feb. 5
9(1) Boiler Safety Mar. 7
9(2) Features & Design Apr. 11
9(3) Features & Design May 13
9(4) Features & Design Jun. 5
9(5) Miniature Boilers of Stainless Steel Jul. 11
9(6) Smokebox Throttle Aug. 11
9(7) Fabricating the Copper Boiler Sep. 5
10(1) Valve Gear Oct. 9
10(2) Valve Gear Nov. 9
10(3) Valve Gear Dec. 9
Nelson, Joseph F. Apr. 8
Nessen, LeRoy Aug. 6
NEW JERSEY LIVE STEAMERS
Big Turnout for Fall Meet Oct. 2
5th Annual Spring Meet Aug. 6
Meets Announced Feb. 12
Plans "Cart Purinton Day" Aug. 5
New Live Steam Club in Texas Apr. 9
New Live Steam Club in Tennessee Oct. 5
NEW PRODUCTS
Boiler Works Available Oct. 14
Brumley Offers New 1½" Trucks Feb. 12
J & J Models Revives Lost Art Apr. 9
Nelson Gray Introduces New Caboose Kit Aug. 13
1" Scale Car Parts Offered Oct. 14
15" Scale GP-9 Announced by Mini-Products Dec. 10
Paul Culp Offers 1½" Scale 115# Rail Aug. 13
Steam Operated Firebox Doors Feb. 12
Winton Offers Standard Drivers Jun. 13
New Year Meet in Florida Oct. 5
New Zealand Model of South African Locomotive Feb. 6
NIAGARA FRONTIER LIVE STEAMERS
Form Club Sep. 9
Nixon, Dan Oct. 3
NORTHERN ILLINOIS LIVE STEAMERS
Buy Land Jun. 9
First Running Meet Jul. 2
Membership Drive Aug. 5
Working Hard Dec. 6
NOVY, ELDO
First Running Meet NILS Jul. 2
Water Gauge Feb. 11
Novy, Bud Jul. 3

OLD #3
Awaiting the Green Board Feb. 5
Green Board for Old #3 Apr. 9
OMAHA AREA LIVE STEAMERS
Derailed by Boiler Law Jan. 4
Inoperative But Not Inactive Jul. 4
One Man's Dream Aug. 2
ONTARIO SUNPARLOR LINES
New Track at Windsor Dec. 6

PACIFIC SOUTHWEST RAILWAY MUSEUM
Trolley Museum Begins Steam Runs Jan. 9
PENNSYLVANIA LIVE STEAMERS
Meet Well Attended Jul. 8

PENSACOLA LIVE STEAMERS
Progress Report Oct. 4
PETERSON, CHESTER G.
Rotary Throttle Aug. 10
Peterson, Chester G. Oct. 7
Petr, Ronald Jul. 3
PETTICOAT PIPE
So You Want To Build A Live Steam Locomotive Feb. 7
PHIPPS-WALKER, EDWARD
Opening of Multi-Gauge Track Oct. 4
PHOTO CONTEST
Sierra Swiss Products Mar. 5
Winners Announced Aug. 12
Pierson, Malcolm Oct. 3
PIONEER VALLEY LIVE STEAMERS
New 1½" Track at PVLS May 6
Southern Date Set Feb. 12
Spring Meet at Southwick Jul. 8
Pirtle, Dan Dec. 7
PISTON RINGS
Machining Steam Engine Piston Rings Jan. 5
PREST, JACK
Assumes Duties as Secretary Of Canadian Div. BLS Mar. 6
Priest, Richard Feb. 1, Apr. 8
Puffing Billy Preservation Society Sep. 2
PUGET SOUND LIVE STEAMERS
2nd Annual Meet Jul. 9
PURINTON, C. A. "CARL"
NJLSTians "Carl Purinton Day" Aug. 5
PURINTON, C. A. "CARL"
Car and Tender Trucks Jul. 10

RAIL
1½" Steel Sep. 9
Paul Culp Offers 1½" Scale 115# Rail Aug. 13
RARITAN
(See MOREWOOD, WILLIAM H.)
RED RIVER VALLEY RAILWAY
Labor Day Weekend Meet Jul. 9
Rees, Walter Jul. 3
REITER, ARTHUR W.
Live Steam is a Family Affair Jan. 2
Reiter, Arthur W. Jan. 1, 2, 3
Reiter, Barbara Jan. 1, 2, 3
Reiter, Kenneth Jan. 1, 2, 3
Reiter, Melissa Jan. 1, 2
Reiter, Thomas Jan. 1, 2, 3
RITENBURG, ROBERT
New Feature on Lighter Side May 6
Cartoons May 6, Jan. 8, Aug. 5
Ritenburg, Robert May 6
Roaring Camp & Big Trees RR Jul. 4
Rochester Area Club Oct. 4
Romani, Lucio Nov. 12
ROTARY THROTTLE Aug. 10
Ruddeow, Truman Jun. 8

SAFETY
Boiler Mar. 7
ST. LOUIS LIVE STEAMERS
New Live Steam Club in St. Louis Jan. 4
SAVILLE, FRANK
Anniversary Run at North Barrington Jul. 8
1st Anniversary Meet Oct. 8
Schaub, Nick Jul. 2, Oct. 8
Schneider, Al Jul. 3
Scott, William Dec. 8
2nd Annual Live Steam Club Survey Feb. 2
Shattuck, Vic Nov. 12
Shine, Mort Jul. 3
SHUSTER, LLOYD G.
New Track In Iowa Nov. 6

SIERRA SWISS PRODUCTS
ENGR.
Photo Contest Mar. 5
Winners Announced Aug. 12
SMOKEBOX
So You Want To Build A
Live Steam Locomotive Feb. 7
So You Want To Build A Live
Steam Locomotive
(See NELSON, JOSEPH F.)
SOUTH AFRICAN LOCOMOTIVE
New Zealand Model of South
African Locomotive Feb. 6
SOUTHERN MINNESOTA LIVE
STEAMER ASSOCIATION
Pike Library Being Estab-
lished Dec. 7
Summer Meet in Minnesota Jul. 8
Spencer, Gene Jan. 3
Squires, J. B. Nov. 12
STALDER, ERNEST F.
Obituary Sep. 9
Stalder, Ernest F. Jul. 1
STAYTUBE THROTTLE May 13, 15
STAYTUBES May 13
Steam In Kitchener May 2
Steam Locomotive In 1838 Jan. 4
Steam Operated Firebox Doors Feb. 12
Steck, Fred Nov. 3
Steck, Ruth Nov. 3
STOKES, L. C.
Boiler Work Available Oct. 14
Stone, Kenneth Nov. 14
STROM, DONALD
Big Power on Don Strom's
W&GB Mar. 2
SUPERHEATER
Data May 18
Flues May 16
SYPHONS May 16

Taylor, Terry Nov. 12
TEDDER, JOEL
JT&SRR Club Builds
Museum May 4
Roaring Camp & Big Trees
RR Jul. 4
Trolley Museum Begins Live
Steam Runs Jan. 9
THROTTLES
Rotary Throttle Aug. 10
Staytube Throttle May 13, 15
Tillotson, Lee Dec. 5
TORONTO LIVE STEAMERS
New Live Steam Club in
Toronto Oct. 5
TRACK GAUGE
. . . from the cupola Apr. 15
Trackwork Under Way in
Houston Nov. 8
Tremblay, Dennis Oct. 14
Trolley Museum Begins Live
Steam Runs Jan. 9
TRUCKS
Car and Tender Jul. 10
TUBES
Arch May 16
Copper Jun. 7
Ends May 14
Layout May 14
Sizes May 13
Turnbull, James Jul. 8, Oct. 1
TURNER, JAMES
Hot Air Engine Apr. 10

VALVE GEAR
So You Want To Build A Live
Steam Locomotive
Oct. 9, Nov. 9, Dec. 9
VINTAGE LOCOMOTIVE
SOCIETY
Awaiting the Green Board Feb. 5
Green Board for Old #3 Apr. 9
Report May 7
VITKOVITS, STEPHEN
2nd Annual Club Survey Feb. 2

WAGNER, DOUGLAS E.
1" Scale Car Parts Offered Oct. 14
Ward, Bruce Oct. 7
WATER GAUGE
Live Steam Data Sheet Feb. 11
WATER TREATMENT
mail stop Apr. 14
WAUSHAKUM LIVE STEAMERS
Building New Track Dec. 7
WEBB, WILLIAM H.
LALS Spring Meet Oct. 6
Weber, Marvin Nov. 13
Welcome, New Readers Jun. 6
West, Jack Oct. 2
What's In The Scrap Box? Aug. 12
WHEEL CASTINGS
1" Wheel Castings Offered
on Initial Run Mar. 5
Winton Offers Standard
Drivers Jun. 13
Whitaker, H. Ray Nov. 7
Whitaker, Joseph Aug. 4
Wilcox, Fred Oct. 7
Wilhelmi, Lee Dec. 4
Wilson, R. F. Aug. 6
Winkle, Richard Nov. 7
WISE, FRED E.
What's In The Scrap Box? Aug. 12
Wood, Harold Jul. 3
WOOKBELL, J. W.
Visit Cut Short By Tragedy Aug. 5

YODER, ENOS W.
New Year Meet In Florida Oct. 5
YOSEMITE MOUNTAIN – SUGAR
PINE R.R. Dec. 2

ZIMMER MODELS
New 1½" Coupler Jan. 4

PART SIX

VALVE GEAR

SO YOU WANT TO BUILD A LIVE STEAM LOCOMOTIVE

CHAPTER 10

by Joseph F. Nelson

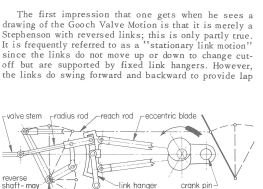
OTHER TWO-ECCENTRIC LINK MOTIONS

It is unnecessary to give a complete coverage of all valve motions here such as: 101 Valve Motions by Fred Jukes in Bulletins No. 88, 89, 90 and 91 issued by the Railway and Locomotive Historical Society. However, this writer will attempt to cover the outstanding valve motions and ignore the unimportant variations that had little or no place in valve motion development. It usually happens that after someone dreams up and develops something really good (the Stephenson Valve Motion, for example), the Monday morning quarterbacks land on him and try to tear him apart. At least it does start some people thinking and it attempts to improve things (valve motions) some good ones and many overly-complicated monstrosities have resulted. Now and then in the past, a simple efficient mechanism has been brought out and has had a reasonable popularity. Two successful valve motions that were attempts to improve upon the Stephenson are worthy of note and are described here: the Gooch and the Allen.

THE GOOCH VALVE MOTION

The first impression that one gets when he sees a drawing of the Gooch Valve Motion is that it is merely a Stephenson with reversed links; this is only partly true. It is frequently referred to as a "stationary link motion" since the links do not move up or down to change cut-off but are supported by fixed link hangers. However, the links do swing forward and backward to provide lap and lead the same as the Stephenson. Reversing is accomplished by swinging a radius rod to the end of the link controlled by the reverse eccentric. Like the Stephenson, this valve gear can be designed for either direct or indirect motion. One disadvantage of the Gooch Valve Motion is that the radius rod takes up more space. However, it is no worse than the Stephenson Valve Motion where a transmission bar is used between the link block and the rocker. The real difference between the Gooch and the Stephenson Valve Motion is that the Gooch Valve Motion provides a constant lead while the Stephenson does not. This is because the links do not move up and down as they do with the Stephenson Valve Motion. The Stephenson link radius is based on its distance from the axle center. However, the links do not swing on the axle center but one end of one link swings on one eccentric and the other end of the link swings on the other eccentric. With the Gooch Valve Motion, the link radius is the same as the length of the radius rod and since the links do not change their vertical position, there is constant lead regardless of where the reverse lever is.

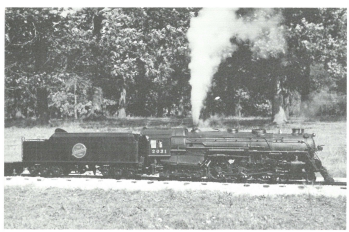
It is customary to modify the hanging of the links by suspending them below their natural center. This improves the steam distribution in ahead at the expense of the performance in reverse. The throw of the eccentrics is usually more than the full travel of the valve, but this can be controlled by unequal rocker lever lengths where indirect motion is used. Since only the radius rod moves instead of the links and eccentric rods, it is easier to reverse than the Stephenson Valve Motion. The reverse shaft may be mounted either above or below the links.

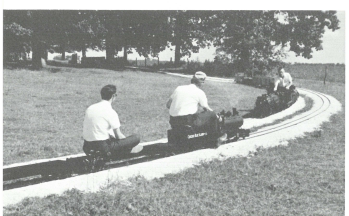


TWO-ECCENTRIC LINK MOTIONS

THE ALLAN STRAIGHT LINK VALVE MOTION

This true link motion was invented by a Scotchman, Alexander Allan who is frequently confused with the originator of the Allen double ported slide valve. The Allan Valve Motion attempts to combine the characteristics of the Stephenson and the Gooch Valve Motions by meeting them halfway. Where the Stephenson moves the links up and down to change the cut-off and to reverse, and the Gooch moves a radius rod to accomplish the same change of valve events, the Allan moves both the links and the radius rod to reverse and to change cut-off. Where the Stephenson links are curved one way and the Gooch links are curved the other way, the Allan goes down the middle by providing straight links. Another down-the-middle characteristic of the Allan Valve Motion is that the Stephenson (open rods) increases lead as it is hooked up and the Gooch has constant lead, whereas the Allan provides a very slight increase in lead as it is being hooked up. The lift arms are so proportioned that the weight of the links balances the weight of the valve rods. This valve motion enjoyed a reasonable popularity on light locomotives in this country and abroad.





Plenty of activity on the

The Johnston Line

Photos and report by Walter S. Johnston

172 actual miles were covered by Walter Johnstons 1½" scale NYC Hudson during the 1968 operating season. The 2031 was steamed up twenty-one times during the year, closing for the winter on September 28th. Equal mileage was turned in by Chicago, Blue Island & Southern's Mogul #1 owned by Bill Schreiber and Ray Pieper. Both engines maintained a heavy running schedule on September 14th when the guests were the members of the Calumet Division of the National Model Railroad Association. Some excellent tape recordings were made that day by Mr. Robert Miller of Valparaiso, Indiana, and they are a joy to listen to.

Dick Lippens' Burlington switcher shared trackage rights on The Johnston Line on September 7th. She performed admirably with tonnage trains on the 3½% grades. It was here that title to the switcher passed to Lynn G. Lowe of Kingsport, Tennessee.

The Johnston Line has 2550 feet of trackage and is located in Northwest Indiana. It is usually in operation Saturday afternoons (weather permitting) during the summer months. Any Live Steamer interested in visiting is welcome, by making prior arrangements with Walter S. Johnston at 12944 Elm Street in Blue Island, Illinois 60406.

With all the grace of its prototype, The Johnston Line's Hudson #2031 (top) stands with steam up – ready for the run. Coupled to ten cars and with Walter Johnston at the throttle (center), the Hudson pulls out of Shady Rest Station with a sizeable load of passengers. CB&S Mogul #1 with Engineer Ray Pieper on the up track passes The Johnston Line's Hudson #2031 on the down track (lower) with Don McCormac in full charge.

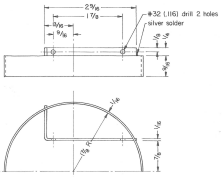
wheel guards, smokebox fittings

building the RARITAN

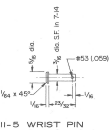
by William H. Morewood

In working up the Wheel Guards (11–4 and 11–6), check after soldering to make sure they are concentric with the drive wheels. It is a good idea to leave excess metal on the ends of the brackets until you have checked them. This may then be filed off.

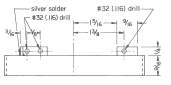
The Cover (11–10) should be fitted so that it will drop over the exhaust tee and between the frames. Leave a little extra metal on the top radius and then file it down until the smokebox fits nicely.

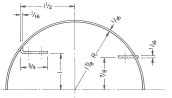


11–4 REAR WHEEL GUARD
Steel - 1 R.H. 1 L.H. required

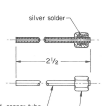


11–5 WRIST PIN
Steel - 2 required

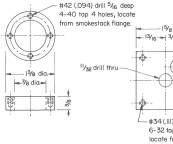




11–6 FRONT WHEEL GUARD
Steel - 1 R.H. 1 L.H. required

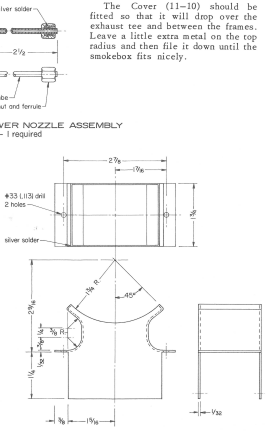


11–8 BLOWER NOZZLE ASSEMBLY
Brass - 1 required



11–9 SMOKESTACK RING
Brass - 1 required

11–11 SMOKEBOX PLATE
Brass - 1 required



11–10 COVER
Brass - 1 required

mail stop

CONSTITUTIONAL HELP NEEDED

Does anyone have a model constitution that we could use in establishing one of our own? We would appreciate any help along this line.

JOHN S. EYSTER, Secretary
Finger Lakes Live Steamers
43 NELSON STREET
FAIRPORT, N. Y. 14450

WISCONSIN BOILER LAW

The third paragraph of my letter ("Stainless Steel Boilers O.K." in the *mail stop* column, LS 1/69) should be clarified as follows:

"The State of Wisconsin says 100 p.s.i. maximum pressure if miniature boilers *are to be certified by the state so they may be fired in public.*"

It sounded as though you could not have over 100 p.s.i. If you do not use it in public, you may use any pressure you wish.

HAROLD EVERSON
224 N. RAWLIN ST.
APPLETON, WIS. 54911

SLIPPERY RAILS

How can I get away from the black slime that forms on aluminum rails when iron wheels run over them?

I can get it off by washing with cold, clear water but it soon comes back again and makes the old goat slip some more!

My equipment consists of a 7½" gauge 4–6–2, two cars and a circle of 1,000 feet of track.

ALF BUNKER
850 FINCH AVENUE
PICKERING, ONT., CANADA

TIME OUT IN BOILER DISCUSSION

(In the very interesting and informative discussion on the effect of chloride stress corrosion in miniature boilers of stainless steel, we have to stop briefly for clarification of a point. One word, "chlorine," *in Eric Corbett's original letter on the subject (LS 10/68) has caused confusion resulting in considerable verbage about who does or doesn't misconstrue, misunderstand, etc. Rather than belabor this fine discussion with rebuttals to rebuttals* ad infinitum, *we will declare at this point that we feel that all parties fully realize that chloride is the culprit with which we are concerned; chlorine is of no importance in the subject at hand.*

With this explanation, we will omit the first several paragraphs of Doug Alkire's most recent letter and continue the discussion at this point: – W. C. F. –)

Mr. Bodzin states that chlorides do not evaporate; they concentrate. He is correct in that as long as new tap water is added to a boiler to replace that lost by evaporation, the chloride particles in the new water will continually add to those present in the original load of boiler water – hence a steady increase in the amount of chlorides in the boiler.

It is the practice of most Live Steamers, however, to blow down their boilers at the end of a run which usually averages about three hours in length. Blow-down is usually from the lowest point possible in the boiler, and the chlorides, even though settled to the bottom of the boiler, are fairly thoroughly blown out with the mass of superheated water. This periodic purging action greatly reduces the rate of chloride concentration.

My technical advisors . . . are all top-notch metallurgists who work at the Space Division of North American Rockwell Corporation. They have solved many stress corrosion problems on the Apollo and Saturn programs and they have excellent lab facilities for testing various materials. They are well aware of the chloride problems encountered by the power generation, petro-chem and chemical companies. They also know from their experience that the conditions encountered in our Live Steam hobby are different enough from commercial conditions to make our operations fairly safe.

For example, the critical item of concern in a steam boiler of stainless steel using tap water of only a few ppm of chlorides is the working stress level in the metal. This is expressed in pounds per square inch of the metal cross-section. The level varies in different areas because of the dimensions and geometry of the cross-section, and because of the additive or subtractive effect of residual stresses in the metal caused by forming, bending, welding, etc., but only the maximum stresses are considered here because they are the most hazardous. Mr. Bodzin stated in his letter that he had seen failures of 304 and 316 stainless in water with only 2 ppm chlorides because of the high stress levels under which the parts functioned. According to my consultants, stress corrosion has not been known to be a problem when tap water is used, except at high stress levels near, or at, the yield point of the metal.

In the presence of chlorides, stress corrosion failures start to occur at lower stress levels as the chloride percentage in the water goes up and, conversely, at higher stress levels as the chloride content goes down. The attack starts as a series of fine craze marks on the surface of the metal which grow into small cracks. These progressively run together to make a long crack. Generally the eventual result is failure of the stressed metal along the long crack. The time factor seems to depend on the strength of the chloride solution, the stress level and the temperature of the metal. The time required for failure to occur may vary from one-half of an hour to many thousands of hours.

My consultants also stated that in the case of a stainless steel boiler such as that in my B & O P–7 (which operates at a maximum applied stress level of 4,100 psi, and with a metal yield stress allowable of 35,000 psi in the flat sheet annealed condition

at room temperature) stress corrosion attack, if any, from chloride contaminated water would be so slow that small cracks, running together, would allow seepage through the boiler shell before the critical crack length was reached which would allow rupture.

If I were to ignore the cracks and seepage when they first appeared, I would naturally be inviting trouble in the form of boiler failure — although the magnitude of the "explosion" is subject to much argument by various experts.

All metals have specific weaknesses of one type or another. Engineers in design work try to select the metal which will most nearly meet the requirements. Boiler metal has a definite maximum service life in hours of operation. As Joe Nelson has pointed out, model Live Steam boilers, in their entire service life, see only a small fraction of the number of hours of service experienced by the average full-size commercial boiler. As for those who do not wish to take even the smallest calculated risk in the operation of a stainless steel boiler, distilled water should be used.

I might mention that a fairly large calculated risk is taken by anyone who rides in any type of motor vehicle. 50,000 people are killed annually and several hundred thousand injured by automotives, but few people are willing to give them up in spite of the obvious and continually proven danger.

Aside from water, another hazard to Live Steamers is poor construction of an all-copper boiler. Poorly riveted joints, poor silver brazing, inadequately installed stay rods are all shortcomings which do not always show up on a hydrostatic test and operation of such boilers represent a definite risk. As long as the percentage of failure is low, we, as Live Steamers, are willing to accept the risk.

My metallurgical consultants feel that the operation of stainless steel boilers with tap water, in our normal mode of operation, does not involve any greater hazard than the operation of boilers made of other materials.

I. DOUGLAS ALKIRE
220 E. HELLMAN
MONTEREY PARK, CA. 91754

DON'T FORGET TO REGISTER
for the
NJLS SPRING MEET
See coupon on page 5 of LIVE STEAM Magazine for February 1969

THE EXTRA BOARD

Items for sale or wanted to purchase by hobbyists. One free ad included with subscription, additional ads 5¢ per word with order.

WANTED

Complete set of blueprints for Little Engines 1/2F 4-8-4 Northern 15/8" scale with centipede tender. Dirck A. Storm, 70 Wepawaug Drive, Milford, Conn. 06460.

Old Electric and Wind-up trains, also quality scale "O" gauge. Top cash. Al Staufer, Route 4, Medina, Ohio 44256.

FOR SALE

1½" scale switcher 13½ HP gasoline engine) forward and reverse. Engine including a flat car, caboose and coal car each carefully detailed. Asking price $1,800.00. Send for photos and details. Brian Miller, Route 2, Minford, Ohio 45653.

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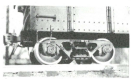

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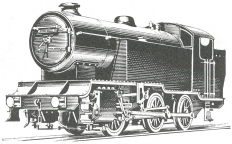

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